FACT SHEET

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NATIONAL MISSILE DEFENSE ARCHITECTURE

Introduction

While the end of the Cold War greatly reduced the threat of global conflict and large-scale attacks on the United States, the proliferation of weapons of mass destruction (WMD) and the means to deliver them pose a major threat to the security of the United States. Over 20 nations, some with interests inimical to the United States, possess or are developing nuclear, biological, or chemical weapons. Ballistic missiles have also proliferated widely and have been used extensively in regional conflicts. The future may bring the proliferation of longer-range missiles, which can be used to attack or threaten the United States. National Missile Defense (NMD) is the focus of the U.S. response to these threats. The current NMD program of the Department of Defense is developing and planning to deploy, if directed, a ground-based missile defense system designed to protect the United States against limited ballistic missile threats from states of concern.

How Will the NMD System Work?

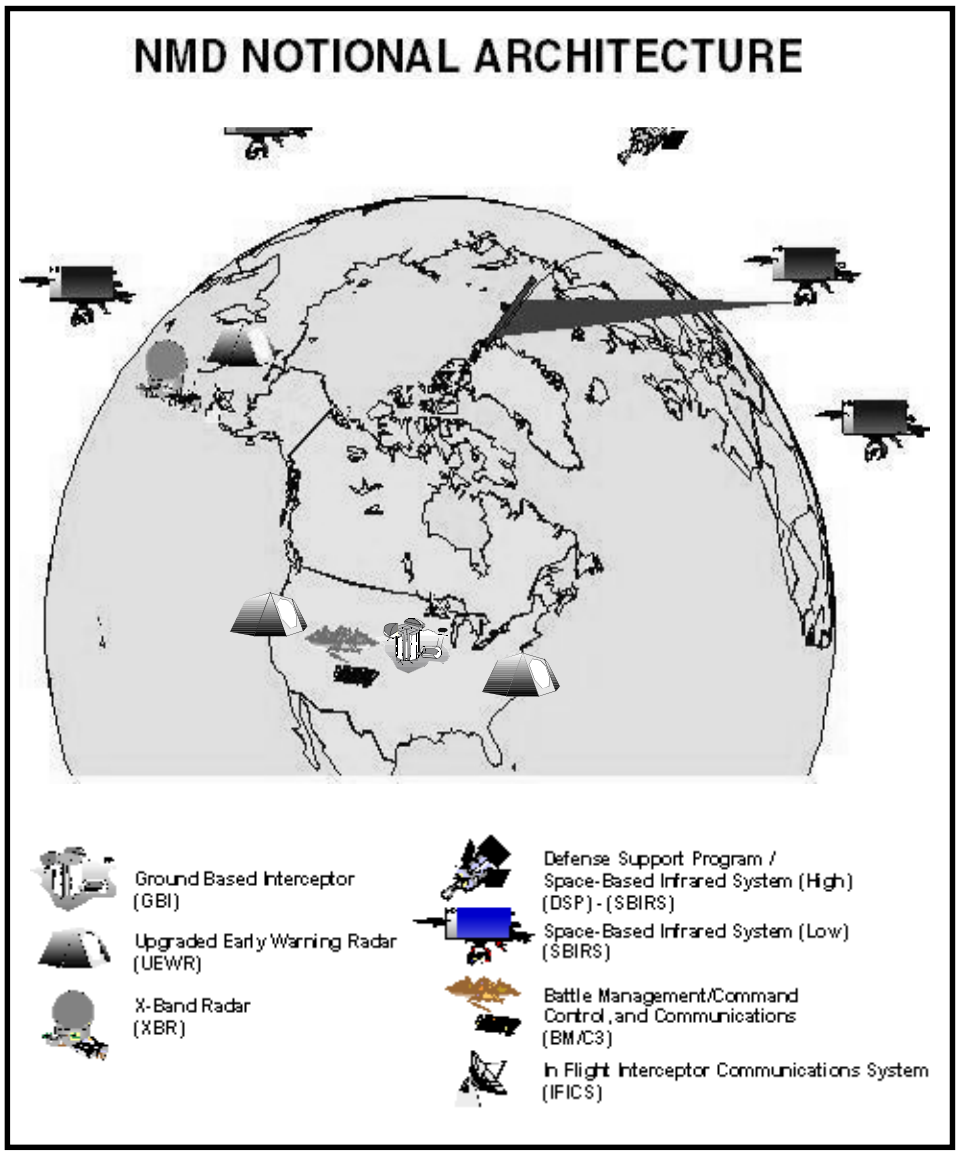
All elements of the NMD system will work together to respond to a limited ballistic missile attack directed against the United States. The U.S. Early Warning System, consisting of Defense Support Program (DSP) satellites, and its follow-on capability, the Space Based Infrared System (SBIRS) satellites, will detect the launch of enemy missiles and then track these missiles while simultaneously gathering critical data. After confirmation, this information will be passed to the Battle Management/ Command, Control, and Communications (BM/C3) system while ground-based radars acquire and track the incoming missile. This information will then be used to make an engagement decision. When defense engagement authority is granted, one or more interceptors will be launched on command to engage the threat. The BM/C3 system will continue to process radar and other system data in order to provide more information to the interceptor so it, in turn, can better discriminate between debris, false objects (penetration aids), and real warheads. The interceptor will use its on-board sensor to acquire the threat, select the target warhead, and guide itself to a direct, high-speed collision using on-board computers and divert propulsion systems. During and after the engagement, the radars continue to collect data and observe the intercept results in order to provide "kill assessment" information which evaluates the interceptor's success or failure.

Elements of the NMD System

As part of the NMD system, the Ballistic Missile Defense Organization (BMDO) is developing, testing, and integrating five major components, or elements. These five elements include: the Ground Based Interceptor (GBI); Upgraded Early Warning Radars (UEWR); Forward Deployed and/or U.S.-based X-Band Radars (XBR); Battle Management/ Command, Control, and Communications (BM/C3); and the Space Based Infrared System (SBIRS) in high and low earth orbit.

Ground-Based Interceptor (GBI) The GBI and its associated components provide the "weapon" of the NMD system. Its mission is to strike high-speed ballistic missile warheads in the midcourse or exo-atmospheric phase of their trajectories and destroy them by force of impact. The GBI consists of several components. The missile payload is called the kill vehicle (KV). This component has its own sensors, propulsion, communications, guidance, and computing functions which all work together to complete the intercept. Next, is the booster that will propel the KV toward an approximate intercept location enabling the KV to perform terminal maneuvers and impact the incoming warhead. In addition to the missile payload, there is also ground command and launch equipment that is needed to launch the interceptor. This consists of the hardware and software for interface with the BM/C3 system, human-in-control interfaces (consoles) and interceptor storage sites (silos), in order to accomplish daily maintenance and readiness functions in addition to providing the launch of the interceptor upon command.

Elements of the NMD System (continued)



X-Band Radar (XBR) The XBR of the NMD program is a forward deployed ground-based, multi-function radar. In the NMD role, it performs acquisition, tracking, discrimination, and kill assessment of incoming warheads. The XBR uses high frequency and advanced radar signal processing technology to improve target resolution, which permits the radar to perform more effectively against closely-spaced warheads, debris and penetration aids.

Upgraded Early Warning Radar (UEWR) U.S. early warning radars are large, fixed, phased-array surveillance radars used to detect and track ballistic missiles directed into the United States. Upgrades to America's Early Warning Radar network will provide the existing forward-based radars with the capability to support the NMD surveillance function. Prior to deployment of the SBIRS (Low) satellites, the UEWRs will be used to detect and track objects during their midcourse phase, primarily to cue the more precise X-Band Radar.

Battle Management/Command, Control and Communications (BM/C3) The BM/C3 element is the "brains" of the NMD system. In the event of a launch against the United States, the Commander-in-Chief of the North America Aerospace Defense Command (NORAD) will control and operate the NMD system through the BM/C3. This element supports the Commander-in- Chief with extensive decision support systems, battle management displays, and situation awareness information. In addition, it supplies the means to plan, select, and adjust missions and courses of action; and it disseminates defense engagement authorization (DEA) and other command decisions to the NMD system elements. The in-flight Interceptor Communications System (IFICS) is the BM/C3 communications link to the interceptors during flyout.

The Space-Based Infrared System (SBIRS) SBIRS is an additional element that future NMD systems will utilize. SBIRS (High) is being developed by the Air Force as part of the early warning system upgrade, which will replace the Defense Support Program (DSP) satellites. In its NMD mission, the SBIRS (High) constellation of sensor satellites will acquire and track ballistic missiles throughout their trajectory. This information will provide the earliest possible trajectory estimate to the BM/C3 element. By providing this "over-the-horizon" precision tracking data to the NMD system, the effective NMD battle space is expanded to permit interceptors to be launched before threats come within range of the XBR, which is critical for effective National Missile Defense.

Ballistic Missile Defense Organization,
External Affairs
7100 Defense Pentagon
Washington, D.C. 20301-7100
(703) 697-8472